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Project name:
Building 45 Heating Project

Project reference:
60556416

To:
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Moffett Field, CA 94035-1000

From:
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Date:
August 2, 2019

CC:
Greg Sviatoslavsky, AECOM

Memo

Subject: Section 106 Consultation on Building 45 Heating Project, NASA Ames Research Center, Moffett Field, Santa Clara County, California

1. Introduction

The National Aeronautics and Space Administration (NASA) Ames Research Center (ARC) proposes the Building 45 Heating Project (project or undertaking) at ARC, Moffett Field, Santa Clara County, California. As the lead federal agency, NASA is responsible for compliance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended (54 United States Code [USC] 300101 et seq.), which requires federal agencies to take into account the effects of their activities and programs on historic properties, and its implementing regulations in 36 Code of Federal Regulations (CFR) Part 800. The purpose of this memorandum is to provide necessary information for compliance with Section 106, including a description of the undertaking and the Area of Potential Effects (APE), the methodology used to identify and evaluate historic properties within the APE, a description of the affected historic properties, and an assessment of potential effects resulting from the undertaking.

1.1 Project Location

Building 45 is located within the NASA Ames Research Park at ARC, Moffett Field, Santa Clara County, California (see Appendix A; Map Figures 1 and 2). The building is on the northwest corner of the intersection of North Akron Road and Cummins Avenue, across the street from Hangar 1. Building 45 is within the U.S. Naval Air Station (NAS) Sunnyvale Historic District, which is listed in the National Register of Historic Places (NRHP). Building 45 is in the industrial zone of the district that is east of Shenandoah Plaza and west of the airfield.

1.2 Project Personnel

This study was conducted by cultural resources professionals who meet the Secretary of the Interior's Professional Qualifications Standards (48 Federal Register 44738). Trina Meiser, M.A., Senior Architectural Historian, served as the Principal Investigator; Jennifer Redmond, M.A., RPA, addressed archaeological resources; Lauren Downs, M.A., RPA, provided map figures; and Kirsten Johnson, M.A., served as the lead verifier of this document.

2. Description of the Undertaking

The project involves the installation of new heating equipment for Building 45, which is considered an undertaking per 36 CFR § 800.3(a). The purpose of the undertaking is to improve heating in the Building 45 work spaces, which currently rely on space heaters. The need for the undertaking is to improve facilities to full operational capability.

This project will:

- Install a gas-powered infrared heating system with suspended panels from the ceiling in the high bay area and gas-powered unit heaters in Room 103.
- Route natural gas piping from an existing underground utility line to Building 45.
- Provide separate temperature controls for three infrared heated zones in the high bay area and for the unit heaters in Room 103.
- Provide and install power from an existing electrical panel to all infrared and unit heaters.

The existing building has no natural gas supply for the new heaters. A new underground gas line will lead northeast from an existing branch pipe stub at the southwest corner of the intersection of Bushnell Road and Severyns Avenue (adjacent to Building 2). Trenching to a maximum depth of 36" will be necessary to install the new gas line, which will run approximately 80' to a point along Bushnell Road where it will intersect with an existing abandoned gas pipe that runs northwest-southeast to Building 45 beneath the paved parking lot. The new underground gas line will be sleeved inside the abandoned gas pipe and will come above ground in the utility yard on the north side of Building 45. Minimal ground disturbance will be necessary to connect the new gas line at the utility yard to Building 45. A new gas meter station will be located on the north side of the building, and from there the gas line will enter the building to supply the new heaters. The gas line will branch up to reach the ceiling, where it will run parallel to the joists.

For the installation of the infrared panels in the high bay area, seismic bracing chains and blocking will be added at the ceiling joists to attach heater supports. For the two unit heaters in Room 103, two flues with cone flashing and storm collars will be installed on the roof of the east wing above Room 103, next to an existing exhaust and gravity vent.

The staging area for this project will be limited to the paved parking lot northwest of Building 45.

Select project drawings are provided in Appendix B.

3. Area of Potential Effects

The APE is defined to address both direct and indirect impacts on historic properties. The APE encompasses areas that may be affected by both temporary and permanent construction activities. Below-grade activities are limited to the proposed underground gas line extension, including areas where approximately 80' of trenching to a maximum depth of 36" is required to install new gas line and access the existing abandoned gas pipe; therefore, only the immediate footprint related to the new underground gas line is included in the APE, with a vertical APE of 36" where trenching will occur. Above-ground activities include temporary staging, which is unlikely to have indirect impacts on historic properties, and alterations to Building 45. Exterior alterations to Building 45 are relatively minor due to the scale of the visible changes; therefore, the APE includes the Building 45 footprint with a 50' buffer to address potential visual and/or atmospheric intrusions related to the exterior alterations (see Appendix A; Map Figure 3).

4. Identification of Historic Properties

Historic properties are defined as any district, site, building, structure, or object that is included in or is eligible for listing in the NRHP. The following sections address the methodology and efforts to identify historic properties in the APE.

4.1 Archaeological Resources

The land that comprises ARC has changed dramatically since the early twentieth century from predominantly agricultural use to an extensive military airfield installation beginning in 1931 and aeronautical research and development beginning in 1939. Extensive surface disturbance occurred throughout ARC with grading and fill to create the airfield and the campuses with hundreds of buildings and structures to support operations.

A comprehensive investigation of previous archaeological studies at ARC was completed in 2017 (AECOM 2017). This investigation involved a desktop survey of archival resources and a geoarchaeological assessment of the entire ARC site, and included an assessment of archaeological sensitivity and the potential for buried archaeological resources. The study concluded that there is low potential for more deeply buried prehistoric archaeological resources across ARC.

Ground disturbance will be necessary to install a new underground gas line between the existing branch pipe stub near Building 2 and Building 45. A review of the 2017 investigation indicates that the proposed work is not located in an area of prehistoric or historic archaeological sensitivity and the work would be limited to previously disturbed areas with low potential for deeply buried prehistoric sites. Therefore, it is not anticipated that archaeological resources will be encountered as a result of this undertaking. The APE is entirely paved, and further archaeological survey or testing related to the undertaking is not necessary, and no potential effects on archaeological resources are anticipated.

4.2 Architectural Resources

AECOM conducted a survey of the APE on July 22, 2019, and identified Building 45 as the only potential historic property in the APE.

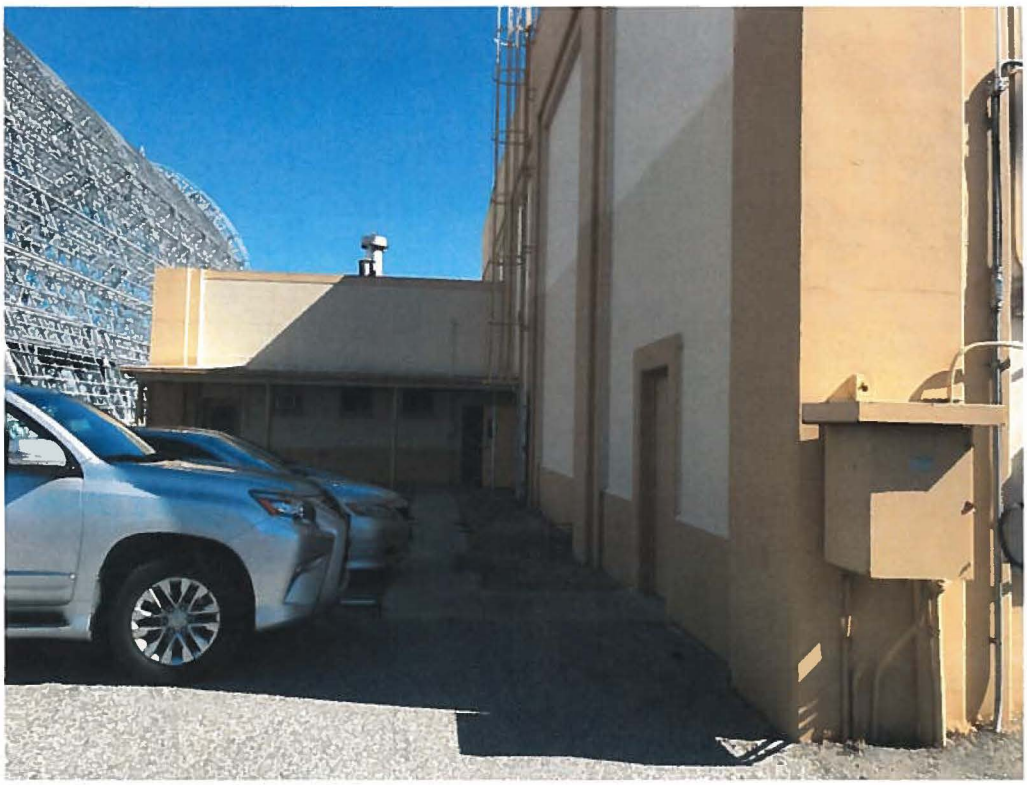
Building 45 is a one-story, reinforced concrete, utilitarian warehouse/research facility on a concrete slab foundation. The main building has a rectangular plan and is three bays wide by five bays long; each bay is delineated by concrete pilasters and recessed concrete walls. A one-story wing with mechanical equipment is located on the north side of the building; another one-story wing containing offices and other rooms is located on the east side of the building. The roof of the main building is a barrel-truss with high parapet walls with no cornice. The roofs of the wings are flat with parapet walls. The south elevation contains the high-bay entrance, which consists of a full-height, multi-panel metal folding door in the oversized westernmost bay (Photograph 1). The west elevation contains a single-entry metal door in the center of the central bay. The north side features a narrow wing containing mechanical equipment, including fans and vents (Photograph 2). The north elevation also includes several utility lines along the exterior wall (Photograph 3). The east elevation contains two single-entries with flush metal utility doors. The east elevation also features a wing with a rectangular plan containing Room 103 and other equipment and work rooms (Photograph 4). The north elevation of the east wing includes two single-entry doors, three elevated square windows, and a covered walkway. The east and south elevations of the wing each contain a single-entry with flush metal door.

The interior of the building includes a high-bay work area (Photograph 5) with smaller mechanical rooms, rest rooms, and offices. The interior has been modified over the years with new partitions, utilities, and other equipment.

Photograph 1. Building 45, west and south elevations, view facing northeast

Photograph 2. Building 45, north and west elevations, view facing southeast (parking lot with existing underground utility line at left)

Photograph 3. Building 45, north elevation, view facing southwest (location of new exterior gas meter and piping)



Photograph 4. Building 45, east wing at left, view facing south (existing exhaust and gravity vent above Room 103 at roofline)

Photograph 5. Interior of Building 45 high bay

Building 45 is located within the boundaries of the NAS Sunnyvale Historic District, but was identified as non-contributing in the NRHP nomination (NRHP 1994). The district is listed based on its significance under NRHP Criteria A and C, and originally included only the earliest Spanish Colonial campus buildings and Hangars 1, 2, and 3. The original periods of significance of the district were identified as 1930 through 1935 and 1942 through 1946. The utilitarian style of later buildings was noted in the NRHP nomination; however, at the time of the nomination, several buildings were not yet 50 years old and were not considered contributing under the statement of significance that focused on Spanish Colonial Revival-style architecture and the engineering feat related to the airfield hangars.

In 2013, a historic property survey of Moffett Field was conducted to evaluate the significance of additional resources related to the airfield and concluded that the airfield and related resources are eligible for the NRHP under an expanded context for the NAS Sunnyvale Historic District (AECOM 2013). The State Historic Preservation Officer (SHPO) concurred on expanding the boundary of the district on June 6, 2013 (OHP reference: NASA_2013_0417_001) with a revised period of significance of 1942 to 1961 for the airfield. It also revised the district's statement of significance to include World War II military missions. However, the 2013 study did not revisit the previously listed areas of the district or its contributing and non-contributing resources.

Built in 1944, Building 45 was part of the continuing development of facilities at the naval air station during World War II. Although research does not indicate that any specific mission-related or notable activities were conducted in the building, it served as a support structure for the naval air station at the end of World War II. The building does not meet the NRHP criteria for individual listing, but it retains sufficient historic integrity to be considered a contributing resource to the historic district under the district's revised statement of significance. Although it is listed in the NRHP as a non-contributing resource, it is considered a contributing resource for the purposes of this study.

5. Assessment of Effects

Per 36 CFR § 800.5(a)(1), an adverse effect results when an undertaking may alter, either directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the NRHP in a manner that would diminish the historic property's integrity.

There are no known archaeological sites in the APE. The proposed work is not within any identified sensitive archaeological zones and would occur in previously disturbed areas with low potential for deeply buried prehistoric sites. Therefore, there are no effects on archaeological resources as none are present in the APE. Should the project uncover previously unknown subsurface archaeological resources, contractors will immediately halt construction, secure the site, and notify NASA of the unanticipated discovery. NASA will follow the Standard Operating Procedure (SOP) for unanticipated discoveries as outlined in the Integrated Cultural Resources Management Plan (ICRMP) for ARC.

Building 45 is located within the NRHP-listed NAS Sunnyvale Historic District. The building's contributing or character-defining features are its utilitarian, reinforced concrete walls; lack of fenestration; and high-bay utility door. Its interior configuration and finishes are not contributing features. The changes proposed will have minimal impacts on the building and its character-defining features. The new exterior piping and the gas meter station will be adjacent to existing exterior utility lines (see Photograph 3), and the proposed roof vents over the east wing roof will be installed next to a similar existing exhaust and gravity vent, and will not detract from any historic characteristics of the building (see Photograph 4). These alterations will not compromise the building's integrity of location, design, setting, materials, workmanship, feeling, or association, or the integrity other contributing properties in the district or the district as a whole. Therefore, the undertaking will not result in any adverse effects on historic properties.

6. Summary of Findings

The criteria of adverse effect were applied to historic properties in the APE, including Building 45, which is a potential contributor to the NAS Sunnyvale Historic District under an expanded statement of significance. The proposed undertaking would not to alter, directly or indirectly, any of the characteristics of a historic property that qualify it for inclusion in the NRHP. Therefore, the proposed undertaking would result in No Adverse Effect on historic properties per 36 CFR § 800.5(b).

7. References

AECOM, 2013. *Historic Property Survey Report for the Airfield at NASA Ames Research Center, Moffett Field, California*. Accessible online at https://historicproperties.arc.nasa.gov/downloads/hpsr_airfield.pdf.

AECOM, 2017. *NASA Ames Research Center Archaeological Resources Study*. Accessible online (redacted) at https://historicproperties.arc.nasa.gov/downloads/section106_achaeology_20170224_nasa_att.pdf.

National Register of Historic Places (NRHP), 1994. U.S. Naval Air Station Sunnyvale, California, Moffett Field, Santa Clara County, California, NRHP # 94000045.

Attachments

Appendix A: Map Figures 1-3 (Project Location, Project Vicinity, APE)

Appendix B: Project Drawings

Attachments

Appendix A: Map Figures

Figure 1 Project Location

Figure 2 Project Vicinity

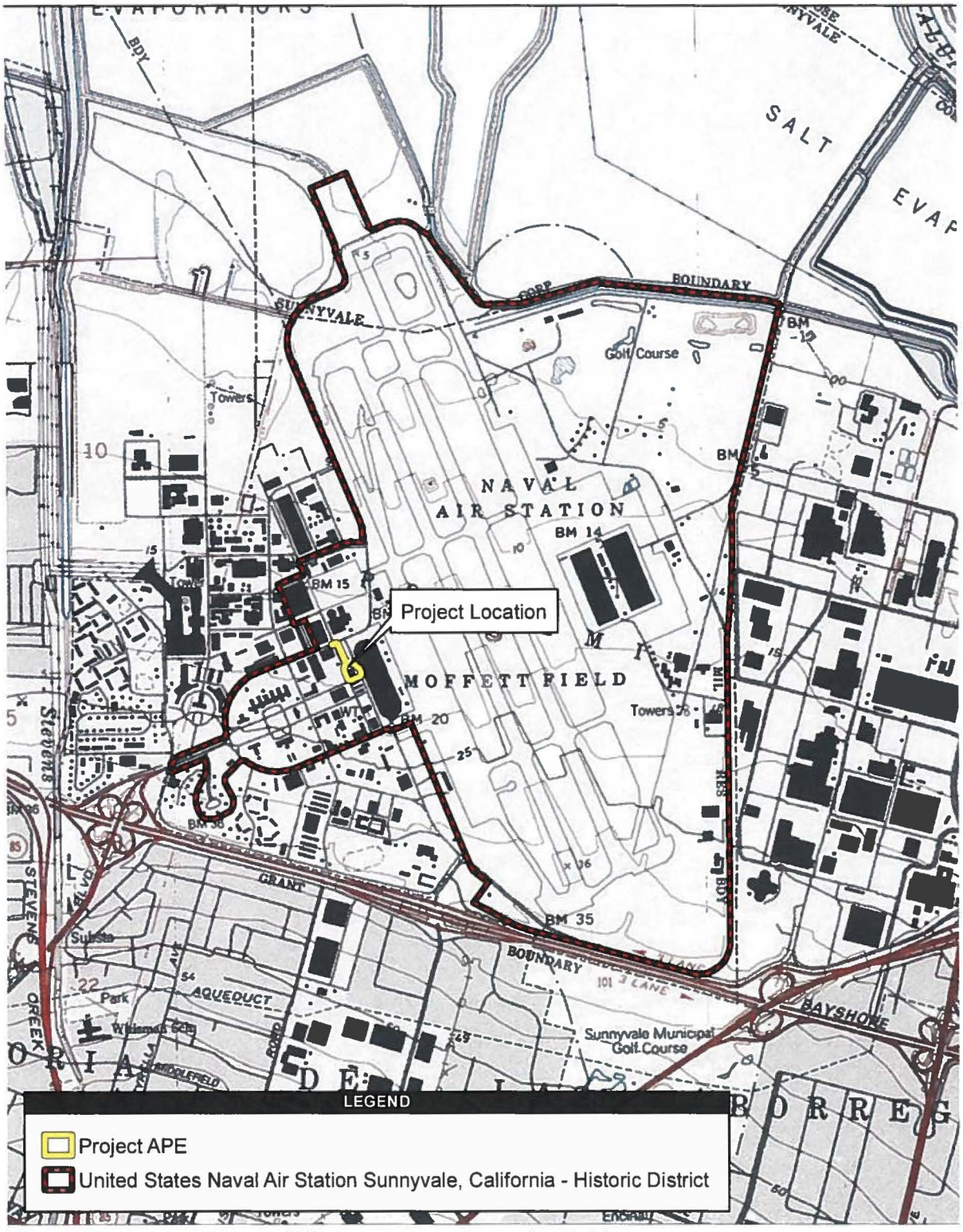
Figure 3 APE Map

Source: ESRI, AECOM, NASA

0 5 10 20 Miles

Scale: 1 = 633,600; 1 inch = 10 mile(s)

Figure 1
Project Location



Source: ESRI, AECOM, NASA, National Geographic Society, USGS 7.5 Topographic Quadrangle Mountain View

0 1,000 2,000 4,000 Feet

Scale: 1 = 24,000; 1 inch = 2,000 feet

Figure 2
Project Vicinity Map

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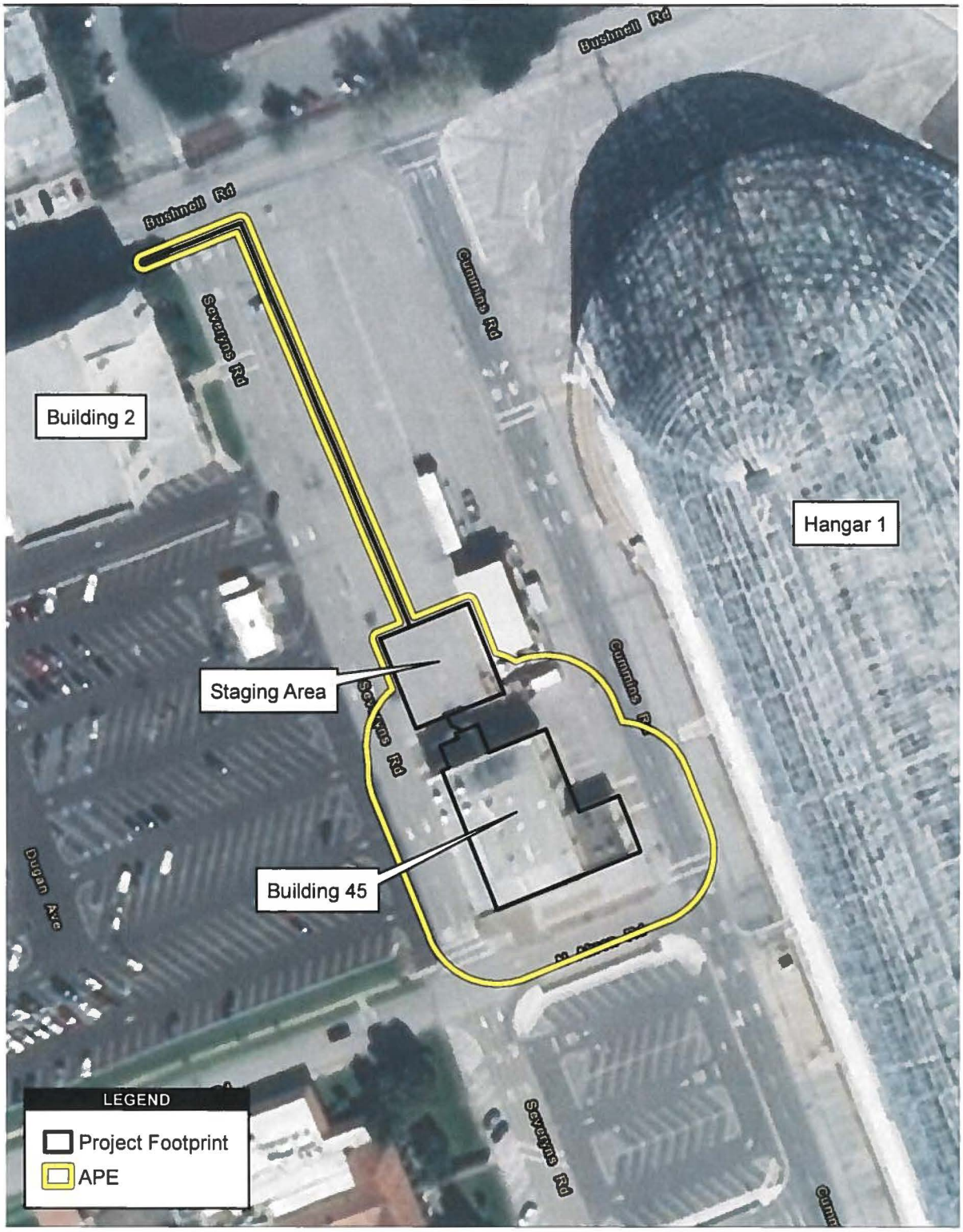

Source: ESRI, AECOM, NASA

0 50 100 200 Feet

Scale: 1 = 1,200, 1 inch = 100 feet

Figure 3
APE Map

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Appendix B: Project Drawings is redacted from this public posting.